

In the Claims

1. (Previously presented) A conjugate for mediating a cell-specific, compartment-specific or membrane-specific transport, wherein the conjugate comprises the following components:

a transport mediator for passing through the cell membrane,

a cell-specific, compartment-specific or membrane-specific address protein/ peptide; and

an active substance to be transported, wherein the active substance is covalently linked to the address protein/peptide, and wherein a redox cleavage site is present between the transport mediator and the address protein/peptide.

2. (Previously presented) The conjugate according to claim 1, wherein the transport mediator can pass through a plasma membrane.

3. (Previously presented) The conjugate according to claim 1, wherein the transport mediator is a member selected from the group consisting of: a penetratin, transportan or parts thereof, bacterial transport protein and viral transport protein.

4. (Previously presented) The conjugate according to claim 3, wherein the penetratin has the following sequence:

NH₂-RQIKIWFQNRRMKWKK- (SEQ ID NO: 1).

5. (Currently amended) The conjugate according to claim 1, wherein the cell-specific, compartment-specific or membrane-specific address protein or peptide is selected ~~from the group consisting of:~~

for import into the ER ~~H₃N⁺-Met-Met-Ser-Phe-Val-~~

~~Ser-Leu-Leu-Leu-Val-Gly-~~

~~Ile-Leu-Phe-Trp-Ala-Thr-~~

~~Clu-Ala-Clu-Gln-Leu-Thr-~~

~~Lys-Cys-Glu-Val-Phe-Gln; (SEQ ID NO: 2)~~

for reimport into the ER ~~H₂N-Lys-Asp-Glu-Leu-COO⁻; (SEQ ID NO: 3)~~

for import into mitochondria ~~H₃N⁺-Met-Leu-Ser-Leu-Arg-
Gln-Ser-Ile-Arg-Phe-Phe-
Lys-Pro-Ala-Thr-Arg-Thr-
Leu-Cys-Ser-Ser-Arg-Tyr-
Leu-Leu; (SEQ ID NO: 4)~~

for import into the nucleus ~~-Pro-Pro-Lys-Lys-Lys-Arg-Lys-Val; (SEQ ID NO: 5)~~

H₃N⁺-Pro-Lys-Lys-Lys-Arg
Lys-Val-(= nuclear localization sequence from SV40
-T antigen); (SEQ ID NO 6)

for import into peroxisomes ~~H₂N-Ser-Lys-Leu-COO⁻; (SEQ ID NO: 7) and~~

for binding to cell membrane ~~H₃N⁺-Gly-Ser-Ser-Lys-Ser-Lys-Pro-Lys (SEQ ID NO: 8).~~

6. (Cancelled)

7. (Previously presented) The conjugate according to claim 1, wherein the active substance is selected from the group consisting of nucleic acids, proteins/peptides and chemical substances.

8. (Previously presented) The conjugate according to claim 1, wherein the conjugate has the following structure:

transport mediator - address protein - active substance.

9. (Previously presented) The conjugate according to claim 1, further comprising a spacer.

10. (Original) The conjugate according to claim 9, wherein the spacer is located between the address protein and the active substance.

11. (Previously presented) The conjugate according to claim 9, wherein the spacer is a member selected from the group consisting of: polylysine, polyethylene glycol and polyvinyl pyrrolidone.

12. (Previously presented) A method of preparing a conjugate comprising a transport mediator for passing through the cell membrane, a cell-specific, compartment-specific or membrane-specific address protein/peptide; and an active substance to be transported, the method of preparing, comprising the steps of:

- 1) synthesizing separate peptides of the transport mediator and address protein/peptide;
- 2) forming a covalent bond between the address protein/peptide and the active substance, and
- 3) redox coupling of the product from step 2) with the transport mediator by means of redox coupling.

13. (Previously presented) The method according to claim 12, wherein the peptide synthesis is carried out according to the Merrifield method.

14. (Previously presented) The method according to claim 12, wherein the redox coupling is carried out in an aqueous DMSO solution.

15. (Previously presented) The method according to claim 14, wherein a further purification step follows.

16. (Original) The method according to claim 15, wherein purification takes place by means of HPLC.

17. (Previously presented) A method of transporting a desired active substance into a cell, a cell compartment or through a membrane of the cell, the method comprising:

- contacting a conjugate according to claim 1 with a cell; and
- culturing the cell for a sufficient time for transport of the conjugate into the cell, a compartment of the cell or through a membrane of the cell for transport of the desired active substance therein.

18. (Previously presented) A method of delivering a therapeutic agent to a cell in need of such therapeutic agent, the method comprising;

contacting a conjugate according to claim 3 with the cell; and culturing the cell for a sufficient time for transport of the conjugate and the therapeutic agent into the cell, a compartment of the cell or through a membrane of the cell.

19. (Previously presented) The method according to claim 12, further comprising:
synthesizing a spacer to be covalently bonded between the address protein/peptide and the active substance.

20. (Previously presented) The conjugate according to claim 1, wherein the cell-specific, compartment-specific address protein is a nuclear localization sequence from SV40-T antigen.

21. (Currently amended) A conjugate for mediating a cell-specific, compartment-specific or membrane-specific transport, wherein the conjugate comprises the following components:

a transport mediator for passing through a the cell membrane or plasma membrane, wherein the transport mediator is a member selected from the group consisting of: a penetratin, transportan or parts thereof, bacterial transport protein and viral transport protein;

a cell-specific, compartment-specific or membrane-specific address protein/peptide; and

an active substance to be transported, wherein the active substance is covalently linked to the address protein/peptide, and wherein a redox cleavage site is present between the transport mediator and the address protein/peptide.